e-mail Andy Dated 7/26

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MEMORANDUM

TO: Steve Cipot - Project Manager
ERRD/NJRB

FROM: Andy Crossland - Geologist
ERRD/PSB/TST

DATE: Thursday, July 26, 2001

SUBJECT: Review of the *Revised Workplan for Delineating and Characterizing Elevated Lead Concentrations in Soil*, the letter regarding *Enhancement of Free Product Recovery,* and the *Workplan for Supplimental Investigation of Natural Attenuation of Disolved Constituents in Groundwater,* L.E. Carpenter, Wharton, New Jersey.

In response to your request, I have reviewed the documents listed above. If you have any questions concerning these comments, please feel free to call me at x4436.

1. The Lead Delineation Work Plan presents an acceptable strategy and may be enacted as soon as practical. The one area which will need minor amendments is the background sampling approach. The work plan defers the selection of background sampling locations to a later date. Specific locations should be selected and approved by the agencies in advance in order to ensure that all parties agree that they are representative. In addition, it is suggested that a total of 10 samples be collected instead of only 5. As it has been contended that mining tailings may be present throughout the area, the higher number of samples will help ensure that our view of background levels is not biased by any samples which fall in an area where such tailings are present.

2. The Enhancement of Free Product Recovery letter proposes the installation of a trench through the long axis of the free product area. As a conceptual design, the document is adequate. If EPA management determines that it is acceptable to forgo a formal evaluation of alternatives, as is requested, then a full design should be prepared. Such a design would need to include greater detail, including full drawings of the construction activities, plans for sampling the excavated materials for disposal purposes, a health and safety plan which covers entry into the trench (implied in the present document), a sampling plan for the construction water / groundwater which is to be treated with activated carbon (note that sampling for lead will also be required), and in general, greater detail on how the trench will be constructed and operated.

   Note also that if the trench proposal is accepted, specific criteria need to be established which

will trigger additional efforts, such as those to enhance flow to the trench. In addition, criteria need to be established which would indicate that the source is adequately remediated. This may trigger more active efforts to address the dissolved phase plume

If an FFS is to be prepared, it should include additional options such as in-situ oxidation and technologies which would enhance flow toward a trench. Note that in-situ oxidation would also likely aid in addressing the dissolved phase plume by oxygenation of the anaerobic area under the NAPL. It may also result in the mobilization of lead.

3. In addressing the dissolved phase groundwater plume, it seems appropriate to more fully document the potential for natural attenuation at the site. Fully addressing the plume will not be possible until the separate phase source has been removed. Until this occurs, efforts should be geared towards insuring that the dissolved phase plume is controlled.

   The work plan for Supplemental Investigation of Natural Attenuation is a good framework. The goals of the study would be to document the consistency of conditions favorable to degradation and to clearly establish that the plume is in steady state or shrinking. The following points offer specific comments on some of the details of the work plan.

   a. The work plan states that wells will be drilled using air-rotary techniques. For shallow wells such as these, EPA prefers hollow stem auger methods. If these have proved problematic at the site in the past, then air-rotary is acceptable.

   b. When surveying the new wells, please include the ground surface elevation next to each well. The work plan also should mention that the wells will be located horizontally. It is assumed that this is intended, but the text does not clearly state it.

   c. Bacterial plate counts are not required by the EPA at this time. If these are desired by the NJDEP or by L.E. Carpenter, they may remain in the scope.

   d. Analyses for ethene and ethane are typically included to evaluate the breakdown of chlorinated solvents. Their utility here is unclear.

   e. Natural attenuation parameters should be collected quarterly. This will allow for the evaluation of any trends, as well as possible seasonal variations.

   f. Ferrous iron concentrations typically change quickly after a sample is removed from the subsurface. These analyses should be conducted in the field using a test kit.

   g. Turbidity should be added to the list of field parameters to be measured during sampling events. This provides an additional check on field parameter stability and aids in documenting that a well is properly developed / not damaged at the time of sample collection.

   h. Summary water levels should be collected across the site in conjunction with the sampling events.

i. As stated in the text, preliminary inputs to the groundwater model should be discussed and agreed upon prior to initiating work on the model. Degradation rates will be very difficult to accurately define, leaving considerable uncertainty in the resulting natural attenuation timeframes. Much of the value from the modeling will lie in runs which do not include a degradation term. If degradation is important, these runs should show that the plume has not migrated the distances expected without degradation. Please be sure to include this in documenting the results. Actual forward projections will be viewed only as estimates, the accuracy of which are qualified by the uncertainty of the inputs.